Business Methods and Software Patenting

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Introduction

Software and business methods† customarily relied on copyrights and trade secrets protection, neither of which provides formal disclosure of their technical aspects.

Naturally occurring items such as plants or minerals are, in general, ineligible for utility patent protection because they are viewed as belonging in the public domain. There is a dichotomy between those items that are naturally occurring, and consequently un-patentable, and those items that are not found in nature, which are patentable. Portions of items found in nature are eligible for patent protection if their claimed form is changed from their natural form.‡ Thus, some items ‘discovered’ in nature may be patented when the patentee both finds them and purifies or extracts them from their natural state.

Section 101 of the Patent Act specifies that patentable subject matter includes “any new or useful process...or any new and useful improvement thereof...” and so accordingly some processes have never been considered patentable subject matter such as purely mental processes are not patentable. Until recently, the business method exception precluded patents on most business-related processes. § There is confusion in patentability, stemming from the failure of the courts to undoubtedly comprehensively state principles for dividing patentable from un-patentable processes.

The absence of standards that must apply to Internet business techniques leaves a vacuum for examiners who rely on patenting procedures that evolved in the context of tangible devices. It is possible to program a computer to do something that is already in familiar social practice and patent the technique which remarkably shrinks the required size of the inventive step.

The Supreme Court solidified standards in Dickinson v. Zurko, holding that the Federal Circuit may reverse the USPTO’s factual determinations “only when its findings are arbitrary, capricious, an abuse of discretion, or unsupported by substantial evidence.”¶ One approach limits patents to industrial processes, while another approach limits patents to processes that manipulate artefacts or cause physical effects.§

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‡ Parke-Davis & Co. v. H.K. Mulford & Co., 196 F. 496, 497 (2d Cir. 1912) (approving the patent application for adrenaline reduced to its pure form).
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Courts have treated inventions and discoveries as indistinguishable for purposes of patentability. An invention is a physical embodiment of the patentee’s inventive contribution to the art, whilst a discovery is a physical manifestation of nature. This distinction is essential to the non-obvious inquiry, because an examination of the physical structural of a discovery reveals little about the patentee’s distinctive contribution to the art. The U.S. Constitution does not draw a distinction between naturally occurring items and human-conceived inventions and Congress has chosen to treat inventions and discoveries as if they were synonymous. Courts have continued to examine the physical structure of both inventions and discoveries—the so-called ‘structural test’—when determining whether an item is too obvious to be granted patent protection. To obtain a U.S. patent, one must first claim subject matter that is eligible for patent protection, which means that the claimed item must be novel, non-obvious, and useful, and so the patentee must fully disclose the specifications of the invention in order to enable a person of ordinary skill in the art to be able to make and use the item.

Courts have debated whether naturally occurring items that have been isolated or purified from their surroundings should be eligible for patent protection. Artificially created chemical compounds are considered inventions. In 1873, Louis Pasteur was granted a patent on a type of yeast in its pure form because he was able to process the yeast in such a way that it was free of germs. In *General Electric Co. v. De Forest Radio Co.*, the court held that although the patentee “was the first to uncover [the pure tungsten] and bring it into view...he did not create pure tungsten, nor did he create its characteristics”, and consequently it was un-patentable subject matter. Moreover, in *Merck & Co. v. Olin*

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6 Oxford English Dictionary (2d ed. 1989) (defining “invention” as “[t]he original contrivance or production of a new method or means of doing something, of an art, kind of instrument, etc. previously unknown; origination, introduction”), with id. (defining “discovery” as “[t]he action of uncovering or fact of becoming uncovered”). Thus, for example, a transgenic fish would be considered an invention for purposes of this paper, whereas a newly discovered species of fish would be a discovery. *Pyrene Mfg. Co. v. Boyce*, 292 F. 480, 481 (3d Cir. 1923) (“Invention is a concept; a thing evolved from the mind. It is not a revelation of something which exists and was unknown, but is the creation of something which did not exist before, possessing the elements of novelty and utility in kind and measure different from and greater than what the art might expect from its skilled workers.”).


8 *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 10 n.3 (1966) (quoting a letter from Thomas Jefferson to Isaac McPherson in which Jefferson stated: “[a] mere change of form should give no right to a patent, as a high-quartered shoe instead of a low one; a round hat instead of a three-square; or a square bucket instead of a round one”).

9 Several courts simultaneously continued to deal with the patentability of artificially produced chemical compounds. See *Union Carbide Co. v. Am. Carbide Co.*, 181 F. 104, 108 (2d Cir. 1910) (holding that a new form of crystalline calcium carbide was patentable, despite prior art of different forms of the compound, because “[t]o hold an important discovery which has given the world a commercially new product—a product [of] high utility . . . not entitled to protection for want of novelty, would, as it seems to us, be applying the patent statute to defeat its fundamental purposes”); *Farbenfabriken of Elberfeld Co. v. Kuehnsted*, 171 F. 887 (C.C.N.D. Ill. 1909) (holding that the product of a new process of purifying the chemical compound for “asperin” was patentable).

10 U.S. Patent No. 141,072 (issued July 22, 1873).

11 28 F.2d 641 (3d Cir. 1928).

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Mathieson Chem. Corp.\textsuperscript{12} upheld a patent claiming a new process of extracting vitamin B-12 from strains of fungi, as well as the extracted vitamin itself. A product of nature that is satisfactorily purified and isolated from its natural surroundings is eligible subject matter for patent protection.\textsuperscript{13} Even if a specific discovery is eligible subject matter, it may still lack novelty or utility, or it may be too obvious to be afforded patent protection. To be novel, the claimed discovery must not be an exact copy of something already patented by another or already known in the art. Parke-Davis & Co. v. H.K. Mulford\textsuperscript{14} & Co upheld a patent on adrenaline that was isolated and purified from animal suprarenal glands and so because no one had yet isolated adrenaline, the court considered the isolated form to be novel. Moreover, the being of a compound as an element of another substance does not negate novelty in a claim to the pure compound.\textsuperscript{15}

Section 103 of the Patent Act denies patentability for an invention or discovery if the claimed item would have been obvious to a person of ordinary skill in the art at the time it was made. When determining whether an invention or discovery is obvious, the PTO and the courts can bear in mind the scope and content of the prior art, the differences between what is claimed and what is in the prior art, and the level of skill in the prior art focusing on the end product that is claimed in the patent rather than the process by which that product is obtained.\textsuperscript{16} In unpredictable arts, such as chemistry and biology, a \textit{prima facie} showing of obviousness can be rebutted by evidence from the patentee that the claimed compound has some unexpected utility that is not found in the structurally similar prior art compounds.\textsuperscript{17} In its 2001 Utility Guidelines, the PTO reaffirmed that the obviousness inquiry is focused principally on the structure of the claimed compound.\textsuperscript{19} The patent system requires only that a patentee identify any use for an invention.\textsuperscript{20} The constraint that an invention or discovery’s utility be ‘specific and substantial’ is a decisive barrier for many applicants seeking to patent genetic sequences.

\textsuperscript{12} 253 F.2d 156, 164 (4th Cir. 1958). The court noted that all “of the tangible things with which man deals and for which patent protection is granted are products of nature in the sense that nature provides the basic source materials.”

\textsuperscript{13} Amgen, Inc. v. Chugai Pharm. Co., 927 F.2d 1200 (Fed. Cir. 1991) (upholding patent on DNA sequence and corresponding gene even though patentee did not “invent” the gene).

\textsuperscript{14} 196 F. 496 (2d Cir. 1912).

\textsuperscript{15} In re Bergstrom, 427 F.2d 1394, 1402 (C.C.P.A. 1970).

\textsuperscript{16} Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17 (1966).

\textsuperscript{17} Langston v. Southwestern Bell Tel. Co., No. 90-1229, 1991 U.S. App. LEXIS 21500 (Fed. Cir. Sept. 6, 1991) (invalidating a jury instruction which included a statement that “workmanship of a good mechanic, or engineer or a chemist skilled in the pertinent art is not invention,” because “[t]he relevant issue is patentability, not ‘invention’ and § 103 makes clear that ‘patentability shall not be negatived by the manner in which the invention was made’”); In re Deuel, 51 F.3d 1552, 1557-58 (Fed. Cir. 1995) (stating that unless the patentee is actually claiming a process or method rather than a product, the non-obviousness inquiry should not focus on processes or methods).

\textsuperscript{18} In re Dillon, 919 F.2d 688, 692 (Fed. Cir. 1990). In re Eli Lilly & Co., 902 F.2d 943, 943 (Fed. Cir. 1990). In re Papesch, 50 C.C.P.A. 1084, 1097 (1963) (arguing that structure and properties are viewed together for non-obviousness: “[a]n assumed similarity based on a comparison of formulae must give way to evidence that the assumption is erroneous”).


The rationale of section 103 is to prevent some items from getting a patent because they are mere trivial variations over the prior art and are consequently not worthy of a monopoly. A patentee’s inventive contribution includes not simply his or her solution to a specific problem, but also the patentee’s original identification of what may have been an undefined or elusive problem informing about the inventive contribution of the patentee. In other words the inventor’s contribution has to be particularly important or ingenious, but that the structural examination of the claimed invention guides courts to recognition of what the inventor’s contribution was, big or small. The Court can derive from the structure of the patentee’s invention to the patentee’s intended function but the structure itself is a mere embodiment of the idea for which the patentee is being rewarded. The structure of a discovery does not directly disclose the patentee’s inventive contribution to the art in the same way that the structure of an invention does.

The formal stock of prior art itself is quite limited because the USPTO did not issue many Internet patents before the mid-1990s. European patent law excludes from patentability certain specific types of subject matter; these include "schemes, rules and methods for performing mental acts, playing games or doing business, and programmes for computers." However, inventions are only un-patentable to the extent that they relate to any of the excluded subject matter "as such." The "as such" clause was intended to narrow the scope of the exclusion, so that inventions should not be excluded merely because they involve some software component, or have some utility in business. The aim of this analysis is to examine the similarities and differences of software and Business Methods patents

**Software patenting**

A piece of computer software is concurrently an authored work of the type usually protected by copyright law and a functional invention similar in many ways to those protected by patents. Software is written in a form understandable by humans, but it is commercially distributed to the public in a form readable only by computers.

A computer program in object code form is functional because it causes a computing machine to operate so as to achieve a certain result and computer programs embody many

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21 *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966) (stating that as a secondary consideration for non-obviousness, “commercial success . . . might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented”) (emphasis added).

22 *In re Conte*, 36 Fed. Appx. 446 (Fed. Cir. 2002). *National Steel Car, Ltd. v. Canadian Pacific Railway, Ltd.* 357 F.3d 1319, 1322 (Fed. Cir. 2004) (the court found that the structural difference in elevation between the ‘575 patent’s car and Wagner’s car translated into an important functional difference which made the ‘575 patent’s car capable of holding more lumber and being more stable.) *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966) (the Court determined that the invention was an obvious variation over the prior art because “the mechanical operation is identical,” and “a person having ordinary skill in the prior art, given the fact that the flex in the shank could be utilized more effectively if allowed to run the entire length of the shank, would immediately see that the thing to do was what Graham did.”)

useful methods and systems which mean that they are largely outside the scope of copyright law and could be better protected through patents. Thus, it could be argued that because the differences between patent and copyright are largely attributable to the key role of patents to protect functional works and of copyrights to protect non-functional works, and for the reason that computer programs are functional, computer programs should be protected by patents and not copyrights.

Software is patentable in the United States. More accurately, the functionality embodied by software is patentable. Software itself (i.e., the code), the expression of the functionality, is not patentable. Courts have traditionally interpreted the patent statute that allowed the patenting of any new process as excluding mathematical formulae, mental processes, or algorithms. Software patents such as improvements in computer-implemented technologies should receive the same level of protection afforded inventions in other arts and disclosure of inventions via the patent system would increase innovation in software.24

The first significant software patent decision came in 1972 when the Supreme Court decided *Gottschalk v. Benson*25 held that a mathematical algorithm itself is not patentable. In 1981, in *Diamond v. Diehr*26 the Court reaffirmed the principle that an invention could not be denied a patent only because its claims covered a mathematical formula but still, the Court stated that mathematical algorithms were not patentable subject matter if they merely covered abstract ideas, which means that certain types of mathematical subject matter, standing alone, represent merely abstract ideas until they are reduced to some type of practical application and thus a valuable, solid and tangible result.27 It could be said that instead of focusing on the four categories of subject matter (process, machine, manufacture, or composition of matter), a court should determine an invention’s “practical utility,” and the invention must also satisfy the tests of novelty and non-obviousness.28 Thus, the patenting of software was not associated with any physical

25 409 U.S. 63, 64 (1972) (holding computer program involving method of converting binary-coded-decimal numerals into pure binary numerals, a mathematical formula without substantial practical application except in connection with digital computer, was not a patentable process).
product or process in *re Alappat.*\(^{29}\) A new standard, announced in *State Street*\(^{30}\) and *AT&T v. Excel*,\(^{31}\) expands patentable subject matter to include processes that produce a “useful, concrete and tangible result.” Hence, the software that constituted a useful application of a mathematical algorithm, formula, or calculation was immediately patentable. Business-related inventions can be claimed as both products and processes. An AT&T invention claimed as a process involving pricing of long distance phone service was judged to be patentable subject matter.\(^{32}\) It could be said that there is a realization that even physical structure was needless, so long as a process or idea was useful. Besides, in *WMS Gaming, Inc. v. Int’l Game Tech*\(^{33}\) held that algorithms are patentable because “a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software” which is more limited than *State Street’s* broad holding.

Computer programs “as such” are excluded from patentability by Member States’ patent laws and the European Patent Convention (“EPC”), but the European Patent Office (“EPO”) and national patent offices have granted thousands of patents for computer-implemented inventions.\(^{34}\) A computer-implemented invention is:

> “…any invention the performance of which involves the use of a computer, computer network or other programmable apparatus, the invention having one or more features which are realised wholly or partly by means of a computer program or computer programs.”

A technical contribution means:

> “…a contribution to the state of the art in a field of technology which is new and not obvious to a person skilled in the art…The technical contribution shall be assessed by consideration of the difference between the state of the art and the scope of the patent claim considered as a whole, which must comprise technical features, irrespective of whether or not these are accompanied by non-technical features.”\(^{35}\)

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\(^{29}\) *In re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994), allowed a party seeking patent protection for software to draft claims to include a general purpose computer, reasoning that with the program loaded, the computer became a special purpose computer as soon as it read the software instructions.


\(^{31}\) *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed. Cir. 1999).

\(^{32}\) U.S. Patent No. 5,333,184 (issued July 26, 1994) (long distance telephone billing system).

\(^{33}\) 184 F.3d 1339, 1348-49 (Fed. Cir. 1999)


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In other words, to involve an inventive step, a computer-implemented invention must make a "technical contribution."

The simple use of a computer does not add a "technical contribution" and so inventions that merely execute business, mathematical, or other methods and do not generate any technical effects beyond the normal physical interactions between a program and the computer, network or other programmable apparatus in which it is run are not patentable.

EPC Section 52 requires: (1) industrial applicability, (2) novelty and (3) an inventive step for a patent to be granted. All patent regimes list innovations that are inherently un-patentable. Article 52 (2) EPC lists subject matter that will not be regarded as an invention, and which is incapable of qualifying for the grant of a European patent. 'schemes, rules and methods for performing mental acts, playing games or doing business and programmes for computers' are un-patentable, but only to the extent that a monopoly is claimed in the subject matter 'as such'. Although the EPO routinely grants European patents for computer-implemented inventions, Art. 52 (2) (3) EPC excludes patents for a business method as such.

The EPC does not define what is meant by 'invention'. Art. 52 (2) EPC contains a non-exhaustive list of outcomes that shall not be regarded as inventions, being either abstract or non-technical. In considering whether the subject-matter of an application is an invention within the meaning of Art. 52 (1), there are two general points the patent examiner must bear in mind. First, the exclusion from patentability under Art 52 (2) applies only to the extent to which the application relates to the excluded subject-matter as such (Guidelines for Examination in the EPO, 2000). Second, the examiner should disregard the form or kind of claim and concentrate on its content in order to identify whether the claimed subject-matter, considered as a whole, has a technical character. If it does not, there is no invention within the meaning of Art. 52(1). In assessing the "technical contribution" of the invention, it is the substance of the invention, not the form of the claims that is important. In the IBM decisions\(^36\) in which this point was decided, claims were subsequently granted to a "computer programme comprising computer program code means adapted to perform [the claimed method] when said programme is run on a computer."

The proposed EU Directive\(^37\) on the patentability of computer-implemented inventions defines a 'technical contribution' as a 'contribution to the state of the art in a technical field which is not obvious to a person skilled in the art'. The EU acknowledges the impossibility of spelling out the meaning of 'technical' in fine detail, because the very nature of the patent system is to protect what is novel and therefore not previously known. Article 4 of the Directive creates a two step requirement for patentability of computer-implemented inventions. There must be an inventive step, if, having regard to the state of the art, the invention is not obvious to a person skilled in the art and it must

\(^36\) (T 1173/97 and T 935/97)
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make a technical contribution. A computer-implemented invention, in which the contribution to the prior art does not have a technical character will be considered to lack the inventive step even if the [non-technical] contribution to the prior art is not obvious. In determining technical contribution, the invention must be seen as a whole: examiners will not expect to 'weigh' the technical and non-technical features in an attempt to determine which aspect makes the more important contribution to the invention's success.

The EPC requirements match the present laws in the United States in numerous ways. First, the “industrial applicability” requirement is comparable to the usefulness requirement of 35 U.S.C. § 101. Second, novelty is defined in EPC section 54 as “not forming a part of the state of the art,” which parallels the United States novelty requirement found in 35 U.S.C. § 102. Conclusively, the “inventive step” requirement is analogous to the requirement in United States law of non-obviousness, as evidenced by EPC section 56, which states that an “invention shall be considered as involving an inventive step if . . . it is not obvious to a person skilled in the art.” Diehr’s requirement of looking at the “invention as a whole” was articulated by the Technical Board in the European case Siemens v. Koch & Sterzel GmbH & Co. Nevertheless, software does not mechanically qualify, and instead, an invention must be of a “technical” nature in order to be patentable. Europe insists that technical contribution requirement blocks patents for inventions that lack at least some physical effect, while the United States has abandoned the requirement that patentable inventions must exist in the physical world in some way or another. The defeat in July 2005 of the EU Directive on Computer Implemented Inventions did not eliminate software patents in Europe and most types of software remain patentable in Europe.

**Business Methods patenting**

E-commerce is a dynamic and rapidly growing sector and cyberspace has penetrated business and home operations on a global scale with remarkable speed. The growth of E-commerce is particularly large in business-to-business transactions, as it provides the ability to source inputs across borders. E-commerce is a powerful tool for integrating markets by reducing distribution costs between enterprises and consumers as well as suppliers and producers. Business methods resourcefully conjoin the interests of consumers and firms to accomplish commercial success.

A business method when carried out using conventional computer systems or office equipment is still a business method but the invention must make an inventive "technical contribution" over the prior art. In other words, the overall inventive effect of the invention must lie in a technical area, not just in a new business method or computer program. Hence, in “business method” patents relating to software applications, the

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courts have been even more generous in allowing patents in areas customarily viewed as out-of-bounds.39

Business methods are back-office methods that increase productivity or reduce organizational or production costs in a company. Many business method patents could effectively provide exclusive rights to a new product variety in an established market40. Business method patents (BMPs) award exclusive rights to inventors for novel techniques that execute commercial functions not embodied in particular physical inventions, including delivering services or products to customers; automating financial decisions; organizing accounting methods and product mixes; and coordinating procurement decisions amongst input suppliers. Commonly, BMPs novel techniques are expressed in computer programmes that achieve an individual business application and the justification for awarding BMPs stems from the recognition that functional aspects of software are patentable. Companies view BMPs as essential components for survival and growth.

The legal movement for encouraging the patenting of business methods emerged in the State Street decision, where the Federal Circuit upheld the Signature Financial Group’s patent on the company’s “Hub and Spoke” system for making financial resource allocations and managing mutual funds.41 A system, as a mathematical abstraction, should not have been patented, but computerized business-management programs meet general patentability criteria and are eligible for patent protection. The non-obviousness requirement is no longer being used as a significant bar on commonplace inventions.

Business methods accomplish industrially useful purposes and should be eligible for patent protection taking into account that an invention must be novel, contain an inventive step that is non-obvious to others skilled in the same art, and have industrial applications.42 The explosion of BMPs is the result of widespread computing technologies and the growth of cyberspace rather than the consequence of any change in fundamental procedures or definitions.

Some BMPs appear to be based on ideas that can not realistically be considered novel because similar methods have existed in a range of unprotected forms for some time. Barnes & Noble contested the validity of Amazon’s “one-click” patent on the grounds that other techniques involving a single operation by the consumer were in operation

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40 Paine Webber v. Merrill Lynch, 564 F. Supp. 1358 (D. Del. 1983) (holding that the patented invention combined a securities account, a money market account, and a credit card; advantage of this combination was better cash management (less idle cash), a higher credit limit on the credit card, and integrated monthly statements.).
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prior to the patent’s issuance in 1999. Many patents cover broad claims that could permit patentees to exclude competition in a wide range of Internet applications. BMPs are controversial because they provide broad and lengthy exclusivity for inventions that may not be predominantly novel or non-obvious. It is possible to patent computerized methods of instruction involving techniques for combining video-taped lectures, online data retrieval, and interactive questioning into a single format.

The economic arguments for issuing BMPs are no different from those supporting protection for any other technology. Exclusive rights provide market advantages that promote investment of time and effort in developing new and better techniques for organizing business. Such inventions, including their incorporation into applications software, may sustain considerable research and development costs. Property rights offer a level of legal certainty that permits inventors to commercialize their inventions through licensing and direct sales. Patent grants make certain disclosure of the technical information essential to encourage additional innovation. To say that business methods are mental constructions involving organizational techniques, more akin to un-patentable discoveries or algorithms than to tangible inventions, is not an economic argument because an important component of technical progress is the simple reorganization within firms of processes such as accounting and quality control. Business methods reduce costs and raise productivity by finding improved techniques for managing processes, typically of a financial nature reducing transaction costs between firms and consumers, largely through cyberspace.

Methods are processes for achieving certain tasks and outcomes, such as information collection and preference identification that may find application across a wide array of business activity differing basically from inventions aimed at solving a particular engineering problem. There is a danger that patentees may seek remarkably broad protection, covering all potential applications and excluding rivals from developing, even with noteworthy independent effort, techniques for achieving the same end. BMPs sort out E-mail protocols, electronic purchasing, downloading technologies, Web site design architectures, and computerized investment-management strategies, examples of processes that are new and subject to continuous evolution. Many participants in the E-commerce and information technology sectors view BMPs as central to their survival and growth as commercial entities. Moreover, business methods are complementary to network technologies enhancing economic development. Thus, BMPs present significant change in fundamental business models improving dynamic competition. Cyberspace has significantly increased the private gains to BMPs while reducing their costs of implementation and enforcement.

The European Patent Office (EPO) moved toward a more expansive view of patentability from its prior insistence that business methods lack technical character and, so, could not

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43 The Federal Circuit agreed that “substantial questions” existed about the validity of Amazon’s patent and removed the injunction against the use of a one-click system by Barnes and Noble. *Amazon.com, Inc. v. BarnesandNoble.com, Inc.*, 239 F.3d 1343, 1347 (Fed. Cir. 2001).

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be patented. The EPO now recognizes that embodiment in a computer technology provides sufficient technical basis for an invented business method. In the last two years, the number of applications for BMPs at the EPO has doubled, totalling approximately 400 in the year 2000.44

E-commerce could expand even faster if BMPs created incentives for developing and commercializing techniques that support orderly marketing on cyberspace including methods for enhancing security, permitting consumers to select and transfer electronic files and payments, supporting companies in calculations of optimal purchasing programs from competing input suppliers, and allowing clients to compute beneficial mixes of financial instruments. Effective licensing of protected inventions could maintain the development of electronic markets, both nationally and internationally. It should be observed and avoided the fact that many BMPs would support more than marginal levels of market power and so patents that protect selling methods or research protocols with widespread application could be the source of long-lasting monopolization.

Conclusion

In practice, most software-related inventions are not excluded and are, thus, patentable. In contrast, most business method-related inventions are excluded and not patentable. The reason for this is that software is usually intended to achieve some new technical effect beyond just operating in a different way, and therefore satisfies the "technical contribution" test. This technical effect may even be internal to the device executing the software, such as an improvement in speed.

Most new business methods, almost by definition, are intended to achieve an effect in the field of business and therefore involve a non-technical contribution. The exception is those business methods that involve new and inventive apparatus. In that case, the apparatus itself can be patented. Many new business methods rely on new software or computer systems, but these are usually excluded from patentability because the sole contribution of the software or system lies in implementing the business method. In the recent Hitachi decision, a computer system for implementing a Dutch auction was excluded for this reason.

The U.S. Patent Office has been rejecting certain software inventions because of their not being directed to the "technological arts", and companies who need patent protection immediately can avoid or overcome technological arts rejections by reciting some hardware in the patent claims.46 Business methods are patentable in the United States provided they have "practical utility" and produce a "useful, concrete, and tangible result." In practice, however, it is more difficult, time consuming, and expensive to obtain

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45 (T258/03)
46 In re Bowman, 61 USPQ2d 1669 (BPAI 2001).
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a business method patent, than a software patent.\textsuperscript{47} Examiners trained as engineers and scientists may lack the economic and business expertise necessary for evaluating the novelty of these inventions. Thus, there is a need for a detailed examination of the inventive step included in business methods patent which might not be so obvious at initial viewing of the business method.

The expansion of patentable subject matter sanctioned by \textit{State Street} caused the flood of e-commerce patents since most of the e-commerce inventions would not be patentable subject matter under pre-\textit{State Street} standards. In contrast, the flood of financial patents is caused by the demise of the business method exception because there has not been a technical breakthrough in the financial services industry.\textsuperscript{48} Finally software and business methods patents have similarities regarding the included inventiveness but there is a need for the existence of an inventive step in their substance in order to qualify for patentability and the standard of inventiveness should not be lowered in order to serve the interests of companies against inventiveness, which is the core of the substance of patents.
